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EXAMINER	
SHOSHO, CALLIE E	

ART UNIT	PAPER NUMBER
1714	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/687,893	CAMPBELL ET AL.	
	Examiner	Art Unit	
	Callie E. Shosho	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/17/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 6-12, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohta et al. (U.S. 5,954,866) taken in view of the evidence given in Ohya et al. (U.S. 6,890,070).

Ohta et al. disclose ink jet ink comprising pigment such as Pigment Black 7 and Pigment Blue 15:3, dispersant, humectant, water, and 0.1-5% resin emulsion including polyacrylate resin emulsion which has particle size of 150 nm or less. The resin emulsion is, for instance, known under the tradename Microgel E-1002 which is well known, as evidenced by Ohya et al. (col.19, lines 9-10), to possess glass transition temperature of 60 ^{0}C. Ohta et al. also disclose recording medium comprising substrate with coating layer, i.e. ink receiving layer, thereupon wherein the layer absorbs and fixes ink and comprises water-soluble resin such as polyvinyl alcohol, hydroxypropylmethyl cellulose, hydroxypropyl cellulose, and polyvinyl pyrrolidone. The coating layer is coated onto entire substrate by means of, for instance, bar coater, i.e. coating is

continuous and coextensive. It is disclosed that the ink is printed onto the recording medium using an ink jet printer (col.2, lines 3-9, 23-24, and 30-33, col.4, lines 20-23 and 62, col.5, lines 18 and 47-50, col.7, lines 14-17, 37-39, and 52-58, col.8, lines 1-2 and 40, col.16, lines 19-30, and col.17, lines 38-42). Although there is no explicit disclosure that the ink jet printer prints in response to digital data signals, this is an inherent feature of ink jet printing.

Given that Ohta et al. disclose recording medium with ink receiving layer comprising polymers identical to those presently claimed, it is clear that such ink receiving layer is also inherently swellable, nonporous, and possesses gloss as presently claimed.

In light of the above, it is clear that Ohta et al. anticipate the present claims.

3. Claims 1-3, 7-12, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Bodager et al. (U.S. 6,197,409) taken in view of the evidence given in Menard et al. (U.S. 5,529,878).

Bodager et al. disclose ink jet ink comprising pigment, humectant (diethylene glycol), water, and water-dispersible or water-soluble polymer such as polyacrylate. The pigment includes Magenta RV 6803 which is well known, as evidenced by Menard et al. (col.10, lines 29-30), as Pigment Red 122. Although there is no explicit disclosure of the glass transition temperature (Tg) of the polymer, it is disclosed that the polymer includes, for instance, polymer obtained from 40% butyl methacrylate, 40% methyl methacrylate, and 20% methacrylic acid. It is calculated using the well known glass transition temperatures of butyl methacrylate (Tg = 20 ^{0}C), methyl methacrylate (Tg = 105 ^{0}C), and methacrylic acid (Tg = 130 ^{0}C) that the Tg of such polymer is 69.5 ^{0}C. Bodager et al. also disclose recording medium comprising substrate with

coating layer, i.e. ink receiving layer, thereupon wherein the layer absorbs and fixes ink and comprises water-soluble resin such as polyvinyl alcohol, carboxymethyl cellulose, hydroxypropyl cellulose, and polyvinyl pyrrolidone. The coating layer is coated onto entire substrate by means of, for instance, roller coating, i.e. coating is continuous and coextensive. It is disclosed that the ink is printed onto the recording medium using an ink jet printer (col.1, lines 8-10, col.2, lines 18-28, col.4, line 66-col.5, line 2, col.5, line 66-col.6, line 4, col.6, lines 54-62, col.7, lines 43-45, 55-56, and 62-63, col.9, lines 59-67, col.12, lines 34-37, and col.13, line 60-col.14, line 15). Although there is no explicit disclosure that the ink jet printer prints in response to digital data signals, this is an inherent feature of ink jet printing.

Given that Bodager et al. disclose recording medium with ink receiving layer comprising polymers identical to those presently claimed, it is clear that such ink receiving layer is also inherently swellable, nonporous, and possesses gloss as presently claimed.

In light of the above, it is clear that Bodager et al. anticipate the present claims.

4. Claims 1-3 and 6-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Shaw-Klein et al. (U.S. 6,417,139).

Shaw-Klein et al. disclose ink jet ink recording method comprising the steps of providing an ink jet printer that is responsive to digital data signals, loading printer with ink-receiving element comprising support having thereon swellable, glossy coating layer wherein the layer absorbs and fixes ink and comprises water-soluble resin such as polyvinyl alcohol and gelatin, loading printer with ink comprising pigment including bridged aluminum phthalocyanine, humectant (diethylene glycol), dispersant, water, and water-dispersible polymer particles

including polyacrylates which have particle size of 10-100 nm and possess glass transition temperature of 30-200 ^{0}C, and printing on the ink-receiving element using the ink in response to digital data signals. The coating layer is coated onto entire substrate by means of, for instance, roller coating, i.e. coating is continuous and coextensive. From the examples, it is seen that the polymer is present in amount of approximately 5-7% while the ink-receiving layer has gloss of 80-97 (col.2, lines 41-44 and 48-56, col.3, lines 33-41 and 46-53, col.4, lines 9-34, col.5, line 36, col.6, lines 8-39, col.6, line 63-col.7, line 6, and col.10, lines 39-48).

Given that Shaw-Klein et al. disclose recording medium with ink receiving layer comprising polymers identical to those presently claimed, it is clear that such ink receiving layer is also inherently nonporous as presently claimed.

In light of the above, it is clear that Shaw-Klein et al. anticipate the present claims.

5. Claims 1-3, 7-10, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Yatake (U.S. 6,737,449).

Yatake discloses ink jet ink comprising pigment, humectant, water, and 0.5-10% resin emulsion including water-soluble acrylic resin emulsion which has glass transition temperature of 0-20 ^{0}C. Yatake also discloses recording medium comprising substrate with swellable coating layer, i.e. ink receiving layer, thereupon wherein the layer absorbs and fixes ink and comprises water-soluble resin such as polyvinyl alcohol, hydroxypropylmethyl cellulose, hydroxypropyl cellulose, and polyvinyl pyrrolidone. The coating layer is coated onto entire substrate by means of, for instance, bar coater, i.e. coating is continuous and coextensive. It is disclosed that the ink is printed onto the recording medium using an ink jet printer (col.1, lines 7-11, col.2, lines 56-58,

col.4, lines 28-29, col.5, lines 48-50 and 61-65, col.7, lines 6-8, and col.9, lines 41-45 and 59-62). Although there is no explicit disclosure that the ink jet printer prints in response to digital data signals, this is an inherent feature of ink jet printing.

Given that Yatake disclose recording medium with ink receiving layer comprising polymers identical to those presently claimed, it is clear that such ink receiving layer is also inherently nonporous and possesses gloss as presently claimed.

In light of the above, it is clear that Yatake anticipate the present claims.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bodager et al. (U.S. 6,197,409) or Yatake (U.S. 6,737,449) either of which in view of either Ohta et al. (U.S. 5,954,866) or Shaw-Klein et al. (U.S. 6,147,139).

The disclosures with respect to Bodager et al. and Yatake in paragraphs 3 and 5 above are incorporated here by reference.

The difference between Bodager et al. or Yatake and the present claimed invention is the requirement in the claims of average diameter of the polymer.

Ohta et al., which is drawn to ink jet ink, disclose the use of polymer having average particle size of no more than 150 nm in order to ensure dispersion stability (col.7, lines 5-58).

Alternatively, Shaw-Klein et al., which is drawn to ink jet ink, disclose the use of polymer possessing average particle size of 10-100 nm in order to prevent nozzle clogging of the printer and prevent polymer particles from settling (col.3, lines 46-53).

In light of the motivation for using polymer with specific particle size disclosed by Ohta et al. or Shaw-Klein et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use polymer with such particle size in either Bodager et al. or Yatake

in order to ensure dispersion stability, or alternatively, prevent nozzle clogging, and thereby arrive at the claimed invention.

9. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta et al. (U.S. 5,954,866) or Bodager et al. (U.S. 6,197,409) either of which in view of Santilli et al. (U.S. 5,738,716).

The disclosures with respect to Ohta et al. and Bodager et al. in paragraphs 2 and 3 above are incorporated here by reference.

The difference between Ohta et al. or Bodager et al. and the present claimed invention is the requirement in the claims of bis(phthalocyanylalumino)tetraphenyldisiloxane.

Ohta et al. and Bodager et al. each disclose the use of pigments, however, there is no disclosure of bis(phthalocyanylalumino)tetraphenyldisiloxane as presently claimed.

Santilli et al., which is drawn to ink jet ink, disclose that commercially available cyan pigments, while possessing excellent lightfastness, tend to become more blue than cyan in hue, and thus the overall color gamut is limited when used in conjunction with other colorants. Thus, bis(phthalocyanylalumino)tetraphenyldisiloxane is used because it possess both excellent hue and excellent lightfastness (col.2, lines 11-33).

In light of the motivation for using bis(phthalocyanylalumino)tetraphenyldisiloxane disclosed by Santilli et al. as presently claimed, it therefore would have been obvious to one of ordinary skill in the art to use bis(phthalocyanylalumino)tetraphenyldisiloxane in Ohta et al. or Bodager et al. in order to produce ink which is excellent in both hue and lightfastness, and thereby arrive at the claimed invention.

10. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yatake et al. (U.S. 6,737,449) in view of Santilli et al. (U.S. 5,738,716).

The disclosure with respect to Yatake et al. in paragraph 5 above is incorporated here by reference.

The difference between Yatake et al. and the present claimed invention is the requirement in the claims of bis(phthalocyanylalumino)tetraphenyldisiloxane.

Yatake et al. disclose the use of pigments, however, there is no disclosure of bis(phthalocyanylalumino)tetraphenyldisiloxane as presently claimed.

Santilli et al., which is drawn to ink jet ink, disclose that commercially available cyan pigments, while possessing excellent lightfastness, tend to become more blue than cyan in hue, and thus the overall color gamut is limited when used in conjunction with other colorants. Thus, bis(phthalocyanylalumino)tetraphenyldisiloxane is used because it possess both excellent hue and excellent lightfastness (col.2, lines 11-33).

In light of the motivation for using bis(phthalocyanylalumino)tetraphenyldisiloxane disclosed by Santilli et al. as presently claimed, it therefore would have been obvious to one of ordinary skill in the art to use bis(phthalocyanylalumino)tetraphenyldisiloxane in Yatake et al. in order to produce ink which is excellent in both hue and lightfastness, and thereby arrive at the claimed invention.

11. Claims 1-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. (U.S. 6,384,108) in view of either EP 1106378 or Ohta et al. (U.S. 5,954,866).

Breton et al. disclose ink jet ink comprising pigment, humectant, water, and 2-20% water-dispersible polymer which is polyacrylate or polyester which has particle size of 2-500 nm and possesses glass transition temperature of 10-100 ^{0}C. The polyester is obtained from 2.5-15 mole% dimethyl 5-sulfoisophthalic sodium salt, 35-47.5 mole % dimethyl terephthalate, and 50 mole% diol such as alkylene glycol. It is disclosed that the ink is printed using ink jet printer onto recording medium and that the ink is printed in response to recording signal (col.1, lines 4-10 and 35-52, col.3, lines 26-31, 35-39, and 49-53, col.4, lines 48-50 and 53-61, col.5, lines 15-18, 28-34, and 44-45, col.7, lines 51-53, and col.9, lines 29-33 and 64).

The difference between Breton et al. and the present claimed invention is the requirement in the present claims of ink receiving layer on recording medium.

Breton et al. disclose that the ink is printed on recording medium, but there is no explicit disclosure of ink receiving layer present on the recording medium.

EP 1106378, which is drawn to ink jet recording sheet, disclose that the recording sheet or medium comprises a non-porous ink receiving layer which absorbs and retains ink and comprises polymer including polyvinyl pyrrolidone and polyvinyl alcohol. The ink receiving layer is coated onto entire substrate by means of, for instance, slot coating, i.e. coating is continuous and coextensive. The motivation for using such ink receiving layer is to produce recording medium having glossy surface and improved waterfastness (paragraphs 1, 5, 8-10, 24, and 35). Given that EP 1106378 discloses recording medium with ink receiving layer comprising polymers identical to those presently claimed, it is clear that such ink receiving layer is also inherently swellable and possesses gloss as presently claimed.

Alternatively, Ohta et al., which is drawn to ink jet ink, disclose the use of recording medium comprising an ink receiving layer which absorbs and retains ink and comprises polymer including hydroxypropylmethyl cellulose, polyvinyl pyrrolidone, and polyvinyl alcohol. The ink receiving layer is coated onto entire substrate by means of, for instance, bar coater, i.e. coating is continuous and coextensive. The motivation for using such ink receiving layer is to form a high quality image when ink is printed onto recording medium (col.1, lines 33-36 and col.2, lines 4-10, 23-24, and 32). Given that Ohta et al. disclose recording medium with ink receiving layer comprising polymers identical to those presently claimed, it is clear that such ink receiving layer is also inherently swellable, nonporous, and possesses gloss as presently claimed.

In light of the disclosure of EP 1106378 or Ohta et al. of recording medium comprising ink receiving layer as described above, it therefore would have been obvious to one of ordinary skill in the art to use recording medium comprising such ink receiving layer in ink jet printing method of Breton et al. in order to produce glossy, waterfast images, or alternatively, high quality printed images, and thereby arrive at the claimed invention.

12. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. in view of either EP 1106378 or Ohta et al. as applied to claims 1-10 and 12 above, and further in view of Santilli et al. (U.S. 5,738,716).

The difference between Breton et al. in view of either EP 1106378 or Ohta et al. and the present claimed invention is the requirement in the claims of bis(phthalocyanylalumino)tetraphenyldisiloxane.

Breton et al. disclose the use of pigments, however, there is no disclosure of bis(phthalocyanylalumino)tetraphenyldisiloxane as presently claimed.

Santilli et al., which is drawn to ink jet ink, disclose that commercially available cyan pigments, while possessing excellent lightfastness, tend to become more blue than cyan in hue, and thus the overall color gamut is limited when used in conjunction with other colorants. Thus, bis(phthalocyanylalumino)tetraphenyldisiloxane is used because it possess both excellent hue and excellent lightfastness (col.2, lines 11-33).

In light of the motivation for using bis(phthalocyanylalumino)tetraphenyldisiloxane disclosed by Santilli et al. as presently claimed, it therefore would have been obvious to one of ordinary skill in the art to use bis(phthalocyanylalumino)tetraphenyldisiloxane in Breton et al. order to produce ink which is excellent in both hue and lightfastness, and thereby arrive at the claimed invention.

13. Claims 1-5, 6-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erdtmann et al. (U.S. 6,046,253) in view of either EP 1106378 or Ohta et al. (U.S. 5,954,866).

Erdtmann et al. disclose ink jet printing method comprising providing an ink jet printer responsive to digital signals, loading the printer with ink-receiving element, loading the printer with an ink jet ink, and printing the ink in response to the digital signals. The ink jet ink comprises pigment such as Pigment Red 122 and Pigment Black 7, humectant, water, and 0.5-3% sulfonated polyester obtained from, for instance, diethylene glycol, 30 mol% sodium sulfoisophthalic acid, and 70 mole% isophthalic acid. The polyester possesses glass transition

temperature of , for instance, 41 ^{0}C (col.2, lines 21-35, col.2, line 48-col.3, line 65, col.4, lines 13, 15, and 23-24, col.5, lines 35-36, and col.6, lines 3-11).

The difference between Erdtmann et al. and the present claimed invention is the requirement in the claims of (a) ink receiving layer on recording medium and (b) particle size of polymer.

With respect to difference (a), EP 1106378, which is drawn to ink jet recording sheet, disclose that the recording sheet or medium comprises a non-porous ink receiving layer which absorbs and retains ink and comprises polymer including polyvinyl pyrrolidone and polyvinyl alcohol. The ink receiving layer is coated onto entire substrate by means of, for instance, slot coating, i.e. coating is continuous and coextensive. The motivation for using such ink receiving layer is to produce recording medium having glossy surface and improved waterfastness (paragraphs 1, 5, 8-10, 24, and 35). Given that EP 1106378 discloses recording medium with ink receiving layer comprising polymers identical to those presently claimed, it is clear that such ink receiving layer is also inherently swellable and possesses gloss as presently claimed.

Alternatively, Ohta et al., which is drawn to ink jet ink, disclose the use of recording medium comprising an ink receiving layer which absorbs and retains ink and comprises polymer including hydroxypropylmethyl cellulose, polyvinyl pyrrolidone, and polyvinyl alcohol. The ink receiving layer is coated onto entire substrate by means of, for instance, bar coater, i.e. coating is continuous and coextensive. The motivation for using such ink receiving layer is to form a high quality image when ink is printed onto recording medium (col.1, lines 33-36 and col.2, lines 4-10, 23-24, and 32). Given that Ohta et al. disclose recording medium with ink receiving layer

comprising polymers identical to those presently claimed, it is clear that such ink receiving layer is also inherently swellable, nonporous, and possesses gloss as presently claimed.

In light of the disclosure of EP 1106378 or Ohta et al. of recording medium comprising ink receiving layer as described above, it therefore would have been obvious to one of ordinary skill in the art to use recording medium comprising such ink receiving layer in ink jet printing method of Erdtmann et al. in order to produce glossy, waterfast images, or alternatively, high quality printed images, and thereby arrive at the claimed invention.

With respect to difference (b), Ohta et al., which is drawn to ink jet ink, disclose the use of polymer having average particle size of no more than 150 nm in order to ensure dispersion stability (col.7, lines 5-58).

In light of the motivation for using polymer with specific particle size disclosed by Ohta et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use polymer with such particle size in Erdtmann et al. in order to ensure dispersion stability, and thereby arrive at the claimed invention.

14. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Erdtmann et al. in view of either EP 1106378 or Ohta et al. as applied to claims 1-5, 6-12, and 14 above, and further in view of Santilli et al. (U.S. 5,738,716).

The difference between Erdtmann et al. in view of either EP 1106378 or Ohta et al. and the present claimed invention is the requirement in the claims of bis(phthalocyanylalumino)tetraphenyldisiloxane.

Erdtmann et al. disclose the use of pigments, however, there is no disclosure of bis(phthalocyanylalumino)tetraphenyldisiloxane as presently claimed.

Santilli et al., which is drawn to ink jet ink, disclose that commercially available cyan pigments, while possessing excellent lightfastness, tend to become more blue than cyan in hue, and thus the overall color gamut is limited when used in conjunction with other colorants. Thus, bis(phthalocyanylalumino)tetraphenyldisiloxane is used because it possess both excellent hue and excellent lightfastness (col.2, lines 11-33).

In light of the motivation for using bis(phthalocyanylalumino)tetraphenyldisiloxane disclosed by Santilli et al. as presently claimed, it therefore would have been obvious to one of ordinary skill in the art to use bis(phthalocyanylalumino)tetraphenyldisiloxane in Erdtmann et al. order to produce ink which is excellent in both hue and lightfastness, and thereby arrive at the

15. Claims 1-3, 6-8, 11-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson et al. (U.S. 6,136,890) in view of either EP 1106378 or Ohta et al. (U.S. 5,954,866).

Carlson et al. disclose ink jet ink comprising 0.5-30% water-dispersible polyurethane, dispersant, pigment such as Pigment Red 122 and Pigment Blue 15 :3, humectant, and water. It is further disclosed that the ink is printed using ink jet printer onto paper (col.1, lines 6-8 and 11-13, col.2, lines 34-35 and 66-67, col.3, lines 6-7 and 53-55, col.6, lines 9-25, col.7, lines 25-30, col.13, lines 54-59, col.14, lines 29-42, and col.15, lines 19-20). Although there is no explicit disclosure that the ink jet printer prints in response to digital data signals, this is an inherent feature of ink jet printing.

The difference between Carlson et al. and the present claimed invention is the requirement in the present claims of (a) ink receiving layer on recording medium and (b) particle size of the polymer.

With respect to difference (a), Carlson et al. disclose that the ink is printed on paper, but there is no explicit disclosure of ink receiving layer present on the paper.

EP 1106378, which is drawn to ink jet recording sheet, disclose that the recording sheet or medium comprises a non-porous ink receiving layer which absorbs and retains ink and comprises polymer including polyvinyl pyrrolidone and polyvinyl alcohol. The ink receiving layer is coated onto entire substrate by means of, for instance, slot coating, i.e. coating is continuous and coextensive. The motivation for using such ink receiving layer is to produce recording medium having glossy surface and improved waterfastness (paragraphs 1, 5, 8-10, 24, and 35). Given that EP 1106378 discloses recording medium with ink receiving layer comprising polymers identical to those presently claimed, it is clear that such ink receiving layer is also inherently swellable and possesses gloss as presently claimed.

Alternatively, Ohta et al., which is drawn to ink jet ink, disclose the use of recording medium comprising an ink receiving layer which absorbs and retains ink and comprises polymer including hydroxypropylmethyl cellulose, polyvinyl pyrrolidone, and polyvinyl alcohol. The ink receiving layer is coated onto entire substrate by means of, for instance, bar coater, i.e. coating is continuous and coextensive. The motivation for using such ink receiving layer is to form a high quality image when ink is printed onto recording medium (col.1, lines 33-36 and col.2, lines 4-10, 23-24, and 32). Given that Ohta et al. disclose recording medium with ink receiving layer

comprising polymers identical to those presently claimed, it is clear that such ink receiving layer is also inherently swellable, nonporous, and possesses gloss as presently claimed.

In light of the disclosure of EP 1106378 or Ohta et al. of recording medium comprising ink receiving layer as described above, it therefore would have been obvious to one of ordinary skill in the art to use recording medium comprising such ink receiving layer in ink jet printing method of Carlson et al. in order to produce glossy, waterfast images, or alternatively, high quality printed images, and thereby arrive at the claimed invention.

With respect to difference (b), Ohta et al., which is drawn to ink jet ink, disclose the use of polymer having average particle size of no more than 150 nm in order to ensure dispersion stability (col.7, lines 5-58).

In light of the motivation for using polymer with specific particle size disclosed by Ohta et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use polymer with such particle size in Carlson et al. in order to ensure dispersion stability, and thereby arrive at the claimed invention.

16. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson et al. in view of either EP 1106378 or Ohta et al. as applied to claims 1-3, 6-8, 11-12, and 14 above, and further in view of Santilli et al. (U.S. 5,738,716).

The difference between Carlson et al. in view of either EP 1106378 or Ohta et al. and the present claimed invention is the requirement in the claims of bis(phthalocyanylalumino)tetraphenyldisiloxane.

Carlson et al. disclose the use of pigments, however, there is no disclosure of bis(phthalocyanylalumino)tetraphenyldisiloxane as presently claimed.

Santilli et al., which is drawn to ink jet ink, disclose that commercially available cyan pigments, while possessing excellent lightfastness, tend to become more blue than cyan in hue, and thus the overall color gamut is limited when used in conjunction with other colorants. Thus, bis(phthalocyanylalumino)tetraphenyldisiloxane is used because it possess both excellent hue and excellent lightfastness (col.2, lines 11-33).

In light of the motivation for using bis(phthalocyanylalumino)tetraphenyldisiloxane disclosed by Santilli et al. as presently claimed, it therefore would have been obvious to one of ordinary skill in the art to use bis(phthalocyanylalumino)tetraphenyldisiloxane in Carlson et al. order to produce ink which is excellent in both hue and lightfastness, and thereby arrive at the claimed invention.

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Iijima (U.S. 6,713,531) discloses ink jet ink comprising polyurethane or polyacrylate latex and pigment that is printed onto glossy paper.

Erdtmann et al. (U.S. 6,533,408) disclose ink jet printing method comprising providing printer, loading printer with ink-receiving element comprising support with ink receiving layer thereon, loading printer with ink comprising water, humectant, pigment, and water-dispersible or water-soluble identical to that presently claimed, and printing ink onto the ink-receiving layer.

However, the ink receiving layer is porous which is in direct contrast to present claims which require nonporous ink receiving layer.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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